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22801 7590 03/09/2010

LEE & HAYES, PLLC
601 W. RIVERSIDE AVENUE
SUITE 1400
SPOKANE, WA 99201

EXAMINER

CHAVIS, JOHN Q

ART UNIT

PAPER NUMBER

2193

DATE MAILED: 03/09/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,486

01/27/2004

Wolfgang Grieskamp

MS1-4468US

9535

TITLE OF INVENTION: GENERALIZED COMPREHENSION IN IMPERATIVE LANGUAGES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	06/09/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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22801 7590 03/09/2010

LEE & HAYES, PLLC
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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,486 01/27/2004 Wolfgang Grieskamp MS1-4468US 9535

TITLE OF INVENTION: GENERALIZED COMPREHENSION IN IMPERATIVE LANGUAGES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 06/09/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
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CHAVIS, JOHN Q 2193 717-136000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/765,486	01/27/2004	Wolfgang Grieskamp	MS1-4468US	9535
22801	7590	03/09/2010	EXAMINER	
LEE & HAYES, PLLC 601 W. RIVERSIDE AVENUE SUITE 1400 SPOKANE, WA 99201			CHAVIS, JOHN Q	
			ART UNIT	PAPER NUMBER
			2193	
DATE MAILED: 03/09/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1499 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1499 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/765,486	GRIESKAMP ET AL.	
	Examiner	Art Unit	
	John Chavis	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed 11/08/07.
2. ☒ The allowed claim(s) is/are 1,4-6,8,9,11,12,16,18-19, 21-25,28-32 and 35.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

/John Chavis/
Primary Examiner, Art Unit 2193

Examiner's Amendment

1. An examiner's amendment to the claims is hereby presented below. The amendment was authorized by the applicant via communications with the applicant's attorney, Mr. Robert Hartman on 2/16/10-2/17/10. An amendment to claims 1, 4-6, 8-9, 11-12, 16, 20, 22-25, and 28-32 is specified below for clarity and to circumvent potential 35 USC 101 issues.

2. The complete claim listing, including the amendments, is listed below:

1. (Currently Amended) A computer readable storage medium ~~implemented apparatus that facilitates generalized comprehension in an imperative language,~~ comprising:

~~a computer readable medium comprising:~~

a language component for causing a computer to receive a user input expression comprising comprehension notations by specifying a user-definable type or class as part of a generalized comprehension that appears as an outside operator to a fixed or static comprehension, enabling programming of comprehension notations in the imperative language;

an interface component for causing the computer to describe a meaning of the comprehension by associating the user-definable type or class with an interface that implements the class, defining methods for the interface in order to supply desired

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functionality for the class, and by applying the class and associated interface in an exterior manner to a list or fixed comprehension function; and

a translation component for causing the computer to analyze the meaning of the comprehension notations and facilitates execution of the comprehension notations in accordance with the imperative language.

2. (Canceled).

3. (Canceled).

4. (Currently Amended) ~~The apparatus of~~ A computer readable storage medium as recited in claim 1, wherein the translation component includes instructions for implementing at least one of just-in-time compilation techniques, interpretive techniques, and source code compilation techniques.

5. (Currently Amended) ~~The apparatus of~~ A computer readable storage medium as recited in claim 1, wherein the language component enables users to define at least one of an implicit expression, an explicit expression, a mathematical expression, a database expression, and a processing expression in accordance with the generalized comprehension.

6. (Currently Amended) ~~The apparatus of~~ A computer readable storage medium as recited in claim 1, wherein the comprehension notations comprise a mathematical parameterized monad.

7. (Canceled).

8. (Currently Amended) ~~The apparatus of~~ A computer readable storage medium as recited in claim 1, wherein the interface component is associated with at least one of a final results function, an accumulation function for intermediate results, an early termination function, and a default value.

9. (Currently Amended) ~~The apparatus of~~ A computer readable storage medium as recited in claim 1, wherein the language, interface and translation components operate upon a generalized comprehension further comprising an assignment expression or a yield return statement.

10. (Canceled).

11. (Currently Amended) ~~The apparatus of~~ A computer readable storage medium as recited in claim 1, wherein the language, interface and translation components operate upon a generalized comprehension further comprising a relational database expression.

12. (Currently Amended) ~~The apparatus of~~ A computer readable storage medium as recited in claim 11, wherein the relational database expression is employed for a query of a database.

13. (Canceled).

14. (Canceled)

15. (Canceled).

16. (Currently Amended) A method for providing a programming environment for a user to input a generalized comprehension that is automatically translated into a language form in an imperative language, comprising:

defining a list comprehension expression;

defining a generalized comprehension class as an exterior component to the list comprehension expression within an imperative language environment;

providing an interface class for the generalized comprehension class; and

compiling the list comprehension expression and the generalized comprehension class to produce an executable format for the imperative language environment.

17. (Canceled).

18. (Original) The method of claim 16, further comprising defining a results function for the interface class.

19. (Original) The method of claim 18, the results function returns a type that is at least one of similar and dissimilar to a type associated with the generalized comprehension class.

20. (Canceled).

21. (Original) The method of claim 16, further comprising defining at least one relational database expression.

22. (Currently Amended) ~~The computer implemented apparatus of~~ A computer readable storage medium as recited in claim 1, having wherein the computer readable medium has a data structure stored thereon, the data structure comprising:

a first data field that defines the static comprehension notation in the imperative language;

a second data field that defines the generalized comprehension notation received from a user input and comprising the static comprehension notation and a comprehension notation external to the static comprehension notation; and

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a third data field that links the static comprehension notation with the generalized comprehension notation.

23. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, wherein the data structure further comprises an interface field associated with the comprehension notation and at least one method associated with the interface field.

24. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, wherein the interface field is associated with at least one of a final results function, an accumulation function for intermediate results, an early termination function, and a default value.

25. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, wherein the generalized comprehension notation is associated with a user-defined expression.

26. (Canceled).

27. (Canceled).

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28. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, further comprising a comprehension type for a direct aggregation of collections.

29. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, further comprising a field for an evaluation that is deduced from analyzing a portion of a collection.

30. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, further comprising a field associated with at least one of a default value and an initialization value.

31. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, further comprising a comprehension type that implicitly implements an interface.

32. (Currently Amended) ~~The medium of~~ A computer readable storage medium as recited in claim 22, further comprising an interface pattern for defining aggregation functions on collections.

33. (Canceled).

34. (Canceled).

35. (Previously Presented) A method for providing a programming environment for a user to input a generalized comprehension that is automatically translated into a language form in an imperative language, comprising:

specifying a user-definable type or class as part of a generalized comprehension that appears as an outside operator to a fixed or static comprehension;

associating the user-definable type or class with an interface that implements the class;

defining methods for the interface in order to supply desired functionality for the class;

applying the class and associated interface in an exterior manner to a list or fixed comprehension function;

defining a results function to receive output from the class; and
compiling the generalized and associated list comprehensions with the interface methods to produce an executable format.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Chavis whose telephone number is (571) 272-3720. The examiner can normally be reached on M-F, 9:00am-5:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on (571) 272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Primary Examiner, AU-2193

/John Chavis/